

What is claimed is:

1. A device for manufacturing microarrays comprising:
 - electro-spraying means for electrostatically spraying, in sequence, a plurality of solutions each containing respective one of a plurality of kinds of biologically active samples;
 - supporting means for supporting a plurality of sample chips on which samples contained in the solutions and electrostatically sprayed from said electro-spraying means are deposited;
 - masking means disposed between said electro-spraying means and said supporting means and having holes whose number is equal to the number of the sample chips, a sample being selectively and simultaneously deposited on said sample chips at predetermined corresponding locations; and
 - shifting means for shifting said supporting means and said masking means relatively such that the samples are deposited on said plurality of sample chips to manufacture simultaneously a plurality of microarrays.
2. The device according to claim 1, wherein said electro-spraying means comprises:
 - a single capillary including one or more electrodes; and
 - means for successively feeding to said capillary said plurality of solutions each containing respective one of said plurality of biologically active samples.
3. The device according to claim 2, wherein the device further comprises means for cleaning said capillary after a sample solution has been electrostatically sprayed and before a next sample solution is electrostatically sprayed.
4. The device according to claim 2, wherein said electro-spraying means further comprises means for feeding a pressurized air into the capillary to convey the solution to tip of the capillary when the solution is to be electrostatically sprayed.
5. The device according to claim 2, wherein said electro-spraying means further comprises a guard ring and/or a shield for preventing diffusion of the electrostatically sprayed substances from said capillary.
6. The device according to claim 2, wherein the device further comprises

means for shifting relative position between said capillary and said supporting means and masking means such that the samples are deposited on each of said plurality of sample chips and a plurality of microarrays are manufactured simultaneously.

7. The device according to claim 1, wherein said electro-spraying means further comprises:

means for holding a plurality of multi-capillary cassettes each including a plurality of capillaries each containing respective one of said plurality of sample solutions and having one or more electrodes which are selectively connected with a power source for electro-spraying; and

transporting means for successively transporting said plurality of multi-capillary cassettes to an electro-spraying site.

8. The device according to claim 7, wherein said electro-spraying means further comprises means for applying a pressurized air to all the capillaries in said multi-capillary cassette to convey the sample solutions to tips of capillaries when the solutions are to be electrostatically sprayed.

9. The device according to claim 7, wherein said holding means further comprises means for controlling a temperature of the plurality of sample solutions contained in said capillaries held in the multi-capillary cassette.

10. The device according to claim 7, wherein said electro-spraying means further comprises a guard ring and/or a shield for preventing diffusion of the electrostatically sprayed substances from said capillaries provided in the multi-capillary cassette.

11. The device according to claim 7, wherein the device further comprises means for shifting relative position between said multi-capillary cassette and said supporting means and masking means such that the samples are deposited on each of said plurality of sample chips to manufacture a plurality of microarrays simultaneously.

12. The device according to claim 1, wherein said hole of the masking means is formed such that a size of an opening of the hole facing said electro-spraying means is larger than a size of an opening of the hole facing said holding means.

13. The device according to claim 1, wherein said masking means

comprises a collimating ring for collecting electrostatically sprayed particles toward the hole, said collimating ring being formed integrally with the masking means.

14. The device according to claim 13, wherein said collimating ring is held between a pair of electrically insulating layers.

15. The device according to claim 1, wherein said shifting means for moving said sample chip supporting means and said masking means relatively comprises an X-Y stage or X-Y-Z stage for shifting said supporting means with respect to said masking means.

16. The device according to claim 1, wherein the device further comprises a plurality of spacers fixed to a surface of said masking means facing to said sample chips at positions near each of the plurality of the holes formed in the masking means.

17. The device according to claim 1, wherein the device further comprises means for feeding a purified dry air through a casing which surrounds a electro-spraying site.

18. The device according to claim 1, wherein said sample chips are made of an electrically conductive material or an electrically insulating material coated with an electrically conductive material and are connected to the ground potential.